

## ***Interactive comment on “Understanding model biases in the diurnal cycle of evapotranspiration: a case study in Luxembourg” by Maik Renner et al.***

**Anonymous Referee #1**

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The study attempts to assess the model biases in the diurnal cycles of evapotranspiration and to analyze the influence of observed input variables under dry and wet conditions. Much effort has been undertaken to analyze a wealth of observed and modeled data. The approach applied in this study is relatively logical. The findings in the paper may be rational. Therefore, I appreciate the authors' effort to handle such much work. However, I have one concern on the presentation. The paper would be publishable in HESS after minor revisions if the author satisfactorily address my concerns.

Lines 22-30 in page 1, This part should be simplified and keep concise for good readability.

Lines 20-23 in page 2, This study focus on revealing the model biases of evapotranspiration by multivariate metrics, therefore recent literatures should be summarized such

C1

as Zhou et al., (2018, published in ACP, doi: 10.5194/acp-18-8113-2018) and Zhou et al., (2017, published in JC, doi: 10.1175/JCLI-D-16-0903.1) that investigated the model biases of regional warming in current reanalysis products and attributed those to the modeled land-atmosphere energy budgets and precipitation frequency.

Section Introduction in pages 2-4, some recent relevant literatures should be summarized in the paper, such as van Heerwaarden et al., (2010, published in JC, doi: 10.1175/2010JHM1272.1).

Lines 11-21 in page 5, There are other approaches to regress this type of the response. Some reasons of the selection of the Camuffo-Bernardi equation should be provided for good readability.

Lines 25-end in page 8, The average gap is up to 67 Wm<sup>-2</sup> and then the diurnal cycle may has a larger gap. How to quantify the influence of energy balance closure gap (before and after correction) on the magnitude and phase lag in the paper?

Line 21 in page 22, how to justify the sentence ('These interactions are also affected by soil water availability, as reflected in the phase lags.') in the paper? whether adding related literatures or not?

Section Conclusions in pages 25-26, The author should rewrite this part to make its logic smooth. If necessary, some discussion should be added to help the readers understand the importance and advantages of this study.

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C2